Methods of Separating Mixtures

A number of methods can be used to separate mixtures. The most common are as follows:

Distillation: A process in which a solution is boiled so the vaporized solvent can be collected and condensed into an uncontaminated liquid. *Example: Making distilled water.*

Evaporation: a slow change of state in which a liquid becomes a gas when heat is added leaving the solute behind. *Example: Production of salt from the ocean.*

Filtering: using a filter to separate a mixture. A mixture becomes separated when some particles are not able to pass through the filter's holes. *Example:* Using a coffee filter when brewing coffee, or using a filter in a furnace to filter incoming air.

<u>Sifting</u>: using a sieve to separate the finer parts of a mixture from the course. *Example: Panning for gold or straining the water from spaghetti.*

<u>Magnetism</u>: Magnets can be used to separated metals from other materials in a mixture. Example: In many recycling depots, old tin cans are separated from the rest of the garbage using a large electromagnet. The magnet latches onto cans, but leaves the non-magnetic materials like aluminum, glass and plastic behind.

Did you know? The sap from a sugar maple tree is about 2.5% - 3% sugar. It is collected by tapping the trees with plastic pipe. Then it is boiled in an evaporator, which boils off the water. What is left is a sweet syrup that is 66.5% sugar. (115 L of sap reduces to about 3.8 L of syrup!)

